Svx Offline Package

Svx Meeting
June 20, 2008

Kenichi Nakano
RIKEN

Updates up to June Review

- Modifications by Manabu and me were merged (*see later pages for detail*)
  - current (not prototype) sensor configuration
  - gain (1 MIP = 100 ADC counts)
  - noise (σ_{ADC} = 10.2)
  - charge sharing (between strips, then between x & u with charge asym.)
  - clustering
    - resolution not evaluated yet ... *done in one week*

- All have been committed to CVS
  - in wrk/svxreco.C, svxPISA.par is used by default instead of database
  - in wrk/svxreco.C, you can find functions to change parameters
  - the previous version (no clustering etc.) can be checked out by

```
cvs co -r WITHOUT_CLUSTERING_LAST offline/packages/svx
```

Reconstruction Configuration

- Sensor arrangement & energy deposit
  - no dead area between two sections, rotation-symmetric section layout
  - 29 u-strips (chan. 0 ~ 28) cover both side of sensor. channel 0 & 383 adjoin
  - 1 MIP = 100 ADC counts in each x/u readout

- Charge sharing between strips
  - Sasha's algorithm, only over x direction

  implement z-direction sharing

- Charge sharing between x & u readouts
  - Manabu's algorithm, energy asymmetry = 0.1 (changable)

- Noise
  - gaussian with σ_{ADC} = 10.2 (changable) per strip
  - noises with ADC < 10.2 are suppressed (not added in SvxRawhitList)

- (continue to next page...)

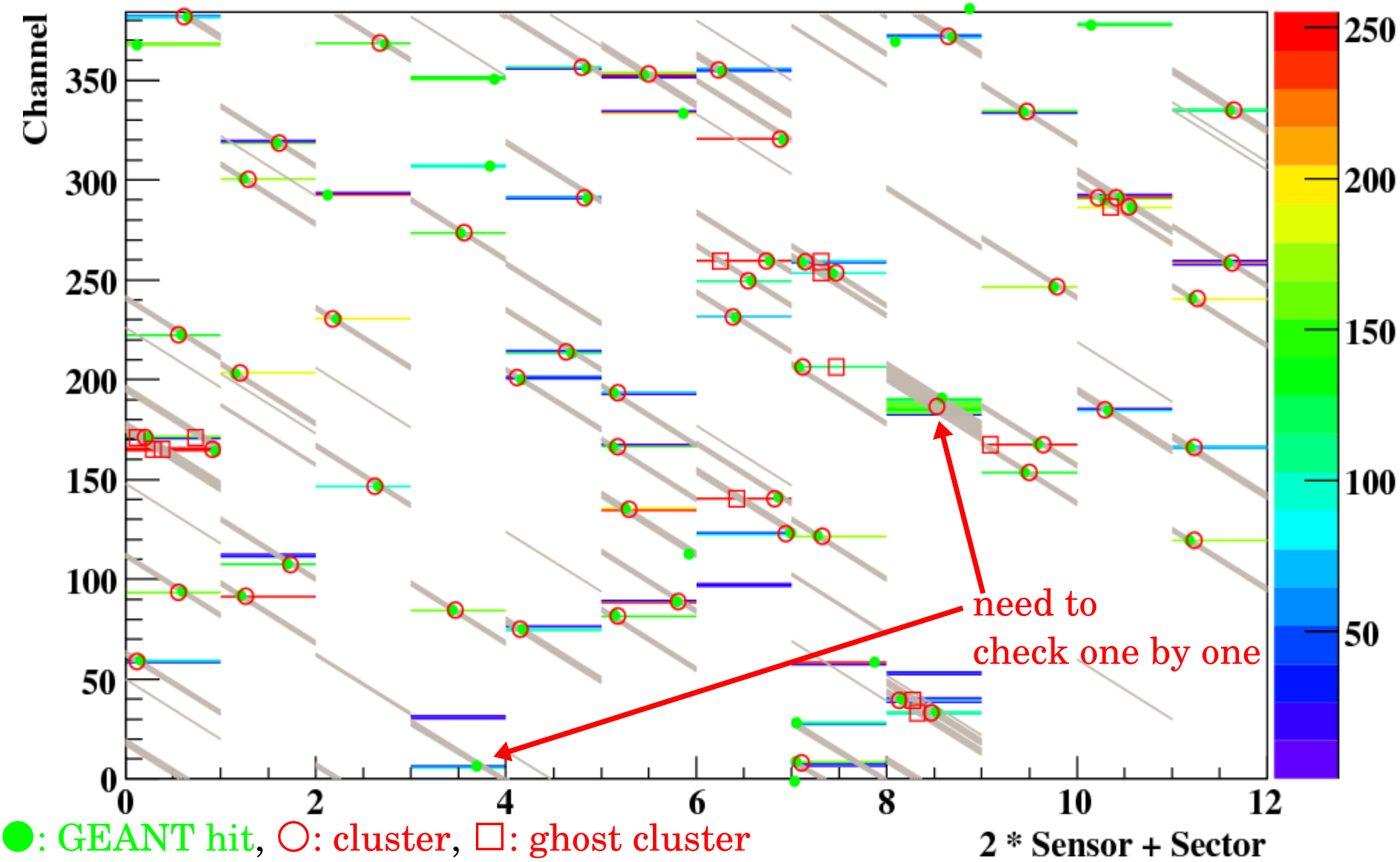
Reconstruction Configuration (cont'd)

- X-strips clustering & u-strips clustering
  - just gather continuous fired strips
  - N of strips in a cluster **not** limited (like < 3) to see how it is in reality
    determine how it is treated
  - strips with ADC >= 21 used
    check dependences on this threshold

- X-u crossing (also called “cluster”) finding
  - strip groups with summed ADC >= 40 used
    check dependences on this threshold
  - cluster position = where the center of x-strips crosses the center of u-strips
    use ADC-weighted center
  - no energy asymmetry cut applied ... it can reduce ghosts a bit
  - resolution not evaluated
    - “width / √12” for one fired strip, but how it is for multiple fired strips?

Hit Positions in Layer 3 Ladder 0

- With charge sharing & clustering



●: GEANT hit, ○: cluster, □: ghost cluster

——: raw hit